



# MARSHALL STAR

Serving the Marshall Space Flight Center Community

Jan. 9, 2003

## 2003 marks centennial of flight for Alabama, nation

by Mike Wright

**T**he year 2003 will be one to celebrate. Astronauts, engineers and scientists will do it. Barnstormers, airline and military pilots, crop dusters, and flight-line mechanics will celebrate too.

The year will include national and local tributes to the first powered heavier-than-air flight. It was on Dec. 17, 1903, that Orville and Wilbur Wright, two Ohio inventors and bicycle mechanics, achieved the milestone in an aircraft that they built. The historic flight took place at Kitty Hawk, N.C.

The celebrations will encompass both aviation and space.

"That means Alabama has many reasons to celebrate as well," said Tim Huddleston, advisor on aerospace affairs to Gov. Don Siegelman.

Huddleston has published a detailed timeline on the history of aerospace in Alabama on the Internet. "In Alabama, the Wright brothers founded the world's first flight school," he said. "The Tuskegee Airmen broke aviation's racial barriers, and the Wernher von Braun team, working first for the U.S. Army, and then NASA's Marshall Space Flight Center in Huntsville,

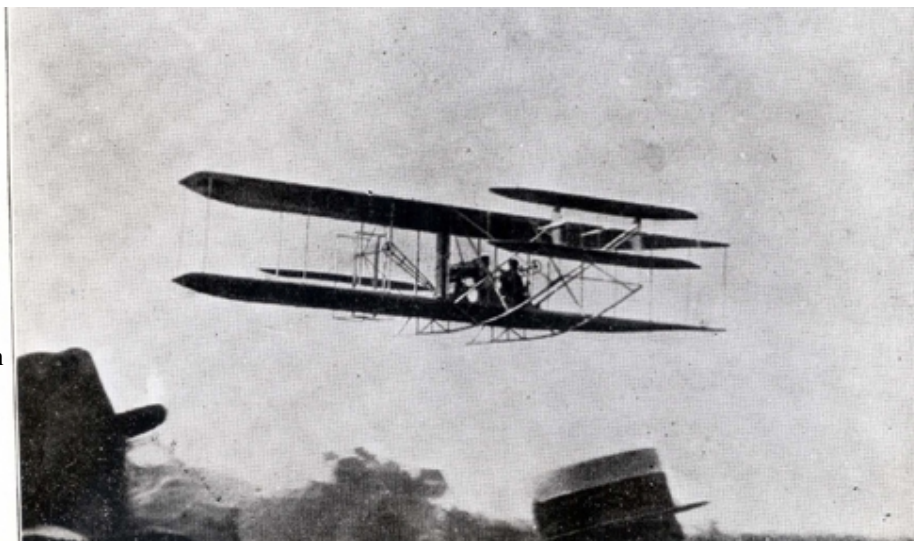


Photo courtesy Maxwell Air Force Base

Orville Wright in flight at "Maxwell Field" in Montgomery, Ala., in 1910.

launched America's space program."

Huddleston points out that seven years after the successful flight at Kitty Hawk, Wilbur Wright toured the South in search of a site for a landing field. Flying activities in Ohio had been confined to warm weather. After visiting Augusta, Ga., and Atlanta, as well as several sites in Florida, Wilbur Wright came to Montgomery on Feb. 20, 1910. A school was established and

*See Centennial on page 5*

## X-ray astronomy pioneer Leon van Speybroeck dead at 67

### Led team that designed mirrors for Chandra X-ray Observatory

*From the Smithsonian's Chandra X-ray Center*

**L**eon van Speybroeck, widely recognized as the premier X-ray telescope mirror designer, died Dec. 25, 2002, in Newton, Mass. He was 67.

Van Speybroeck was the telescope scientist for NASA's Chandra X-ray Observatory and led the team that designed the mirrors for the observatory.

Chandra's mirrors are the most precise mirrors ever made — smooth with tolerances of a few atoms.

Since its launch aboard the Space Shuttle Columbia in July of 1999,

Chandra has made spectacular X-ray images of nearby and remote celestial objects including comets, exploding stars, jets of gas expelled from the vicinity of black holes, and powerful quasars more

than 10 billion light years from Earth. The data from the observatory has led to new discoveries about the evolution of stars and galaxies, the nature of black holes, dark matter, and the topography of the universe.

"Leon was one of the master mirror designers of our time," said Harvey Tananbaum, director of the Chandra X-ray

*See Pioneer on page 4*

# 2002 in review: A new mission, a new vision — and a year of plentiful success

## *Director's Corner*

In April, NASA Administrator Sean O'Keefe introduced the Agency's new mission statement: "To understand and protect our home planet; to explore the universe and search for life; and to inspire the next generation of explorers... as only NASA can." Simple, yet powerful.

Nowhere in 2002 was every element of that mission statement in greater evidence than right here at Marshall.

And, as we implement our "ONE NASA" strategy for more cooperative service across the Agency and around the nation, nowhere will you find a team more committed to this collaboration than the men and women of the Marshall Center. Your achievements are NASA's achievements, and NASA's success is our success.

It is difficult to express the pride I feel serving you as your center director, or my thanks for all you've done to make 2002 such a remarkable and ground-breaking year.

## *Reaching out*

In April, Space Shuttle Atlantis carried another Marshall success story into orbit, flying three new Block II Main Engines during STS-110. The enhanced engines — which incorporate an improved high-pressure fuel turbopump with a stronger integral shaft/disk and tougher bearings — increase flight safety and reliability, potentially increasing the number of Shuttle launches between overhauls.

The Space Launch Initiative, spearheaded for NASA by the Marshall Center, reached a number of critical goals in 2002, determining the Agency's path to develop an Orbital Space Plane for crew transfer and crew rescue, and to develop Next Generation Launch Technology (NGLT) initiatives. As part of the NGLT program, the Marshall Center will continue to develop advanced launch vehicles, chemical propulsion engines, and ambitious new hypersonic flight technologies — a joint effort with the U.S. Department of Defense to meet key next-generation launch technology goals. Among the highlights: a successful first-stage systems requirement review for the Integrated Systems Test of an Air-breathing Rocket (ISTAR) engine, which is managed by the Marshall Center.

NASA also made new scientific advances in 2002. The Microgravity Science Glovebox, built and managed at Marshall, went into service aboard the Space Station, enabling Station crew to safely perform experiments involving fluids, flames, particles and fumes. Marshall also continued to successfully manage



Stephenson

Marshall Imaging Services

round-the-clock science research aboard the Station at its Payload Operations Center.

In cooperation with Stanford University, the Center is preparing for the 2003 launch of Gravity Probe B, NASA's sophisticated experiment to test Einstein's Theory of General Relativity. The mission — to test Einstein's belief that massive objects distort space and time — will be among NASA's first attempts to address this question of fundamental physics.

New commercial applications adapted from space technology remains a key pursuit of NASA and the Marshall Center.

The past year saw a number of successful technology transfers. Two American companies — MTS Systems Corp. of Eden Prairie, Minn., and MCE Technologies Inc. of Seattle, successfully commercialized a specialized welding tool developed at Marshall. And the "AiroCide Ti02" air scrubber — based on technology developed for the Space Shuttle and Space Station — introduced a safe, effective means of killing dangerous spores, including deadly anthrax.

## *Looking beyond*

As NASA increased its propulsion research efforts in 2002, the Marshall Center took responsibility for implementing the In-Space Propulsion Program, on behalf of the Office of Space Science. Marshall oversees solar electric propulsion, solar sails and plasma sails, space-based tether propulsion, aerocapture technologies and more — all projects that soon could result in unprecedented science missions throughout the solar system. Additionally, Marshall broke ground last year on its state-of-the-art Propulsion Research Center, scheduled to open in spring 2004. The facility will play a key role in NASA's efforts to develop propulsion technologies to send future missions to the edges of the solar system — and, eventually, beyond it.

The Chandra X-ray Observatory also continued to make unprecedented scientific observations throughout 2002. The Marshall-managed observatory spotted unique anomalies in ancient galaxies, gleaned new information about black holes and discovered a pair of stars — one too small, one too cold — that challenge our understanding of nuclear physics and the very nature of matter itself. The Marshall Center is also partnering with Goddard Space Flight Center on two new space optics programs: the James Webb Space Telescope and the Constellation-X Space Telescope — the successors, respectively, to the Hubble Space Telescope and Chandra itself.

*See 2002 on page 3*

# Cucarola named IFMP systems implementation manager

from the Human Resources Department

**P**amela H. Cucarola has been named administrative systems implementation manager for the Integrated Financial Management Program in the Office of the Chief Financial Officer at the Marshall Center.

Cucarola began her career at Marshall in 1982, as an accounting student trainee in the Personnel Services Division, Professional Recruiting Branch. In 1985, she became an accountant in the Financial Management Office, General Accounting Division, Contracts and Materiel Accounting Branch.

For the past 17 years, she has held a variety of progressively responsible

positions, including supervisory operating accountant and supervisory systems accountant in the Office of the Chief Financial Officer. She was selected to lead implementation of the Integrated Financial Management Program Core Financial System for NASA, serving as the deputy project manager and later as the core financial project manager.

Cucarola earned a bachelor of science in accounting from the University of Alabama in Huntsville and is a certified government financial manager. She has completed numerous executive and management-level training courses, including Federal Program Management, the Marshall Center's Advanced Management Program and the Leadership Development Program.



Marshall Imaging Services

Cucarola

She is the recipient of several awards including a NASA Outstanding Leadership Medal, and numerous Performance and Special Service Awards.

## Job announcements

**MS03C0030**, AST, Structural Dynamics (Supervisory). GS-861-14, Engineering Directorate, Structures, Mechanics, and Thermal Department, Structural and Dynamics Testing Group. Competitive Placement Plan. Closes Jan. 13.

**MS03C0031**, AST, Structural Mechanics (Supervisory). GS-861-14, Engineering Directorate, Structures, Mechanics, and Thermal Department, Strength Analysis Group. Competitive Placement Plan. Closes Jan. 13.

## Thank you

**F**or all of the love, hugs, hospital visits, phone calls, food, flowers, money, cards, e-mails, drives to the hospital, and praying that was done on behalf of my beloved Dwight in his illness and death, we want to thank you from the bottom of our heart. Your support and caring for all three of us has meant so much to us at this sad and devastating time in our lives.

*Thank you,  
Sarah and Blane Kent*

## 2002

*Continued from page 2*

### Giving something back

As always, NASA remains dedicated to inspiring the next generation of space explorers, and the Marshall Center echoes that dedication in countless ways.

High school students all over America helped prepare hundreds of biological samples for International Space Station experiments in 2002, working with the Marshall Center's Biotechnology Program and university scientists to load the samples at school labs and workshops around the nation. And here in Huntsville, students took part in the first Student Launch Initiative, the Marshall Center's program to inspire young people while they develop, test and fly working rockets.

Meanwhile, the ninth annual Great Moonbuggy Race — NASA's student design challenge held each April in Huntsville

— drew more than 60 teams from 20 states and Puerto Rico last year, and earned international media attention, including Headline News on CNN. And Starship 2040, the popular space transportation exhibit managed by Marshall, continued to roll across America in 2002, making key stops at universities, high schools and other education facilities in Florida, Colorado, Kentucky and Alabama to excite young people about space transportation and propulsion technologies and careers in math, science and engineering.

We continue to shape our own future, performing with excellence on all our projects. And as we continue to use our Core Values as guideposts for conducting our business, I am confident 2003 will be another great year for the Marshall Space Flight Center.

— **Art Stephenson**  
*Marshall Center Director*



# Pioneer

*Continued from page 1*

Center at the Harvard-Smithsonian Center for Astrophysics in Cambridge, Mass. "His contributions were essential to the tremendous success of the Chandra mission."

"Leon was one of the best instrumentalists I ever knew and a dear colleague and friend," said Nobel Physics laureate Riccardo Giacconi of Associated Universities, Inc. in Washington, D.C., who established and led the team that built the first X-ray telescopes. "Together with Giuseppe Vaiana, he perfected the X-ray telescopes, which were used for solar research in the late 60s and early 70s. He was directly responsible for the development of the Einstein and Chandra X-ray telescopes. Leon's contributions were essential to the achievement of Chandra angular X-ray resolution, the highest yet obtained in X-ray astronomy. Many of the outstanding scientific results from Chandra could not have been obtained without it. He brought to his work complete intellectual integrity and a search for excellence."

"Leon's death is tragic," said Chandra project scientist Dr. Martin Weisskopf of the Marshall Center. "The community has lost a truly great scientist in X-ray astronomy. I feel especially saddened because I have lost a friend as well as a colleague." The Marshall Center manages the Chandra program for the Office of Space Science in Washington.

"A giant of X-ray astronomy has



Photo courtesy Chandra X-ray Center

**Leon van Speybroeck**

passed from our midst," said Irwin Shapiro, director of the Center for Astrophysics, where van Speybroeck spent most of his career. "Leon was also a wonderful person, always modest, unfailingly helpful to anyone in need, and ever precise and accurate in his statements."

Van Speybroeck, a native of Wichita, Kansas, earned a doctorate in nuclear physics from the Massachusetts Institute of Technology in Cambridge. After graduating, he joined Giacconi's X-ray astronomy group where he became involved in the design of the X-ray mirrors on Skylab. After moving to the Center for Astrophysics in 1973, he had primary responsibility for designing and developing the mirrors for the Einstein X-ray Observatory, the predecessor to Chandra.

The construction of X-ray mirrors is extremely challenging because the high energies of the X-rays require ultra-smooth mirrors. And since X-rays reflect

only at glancing angles, like skipping pebbles across a pond, the mirrors must be shaped like cylinders rather than the familiar dish shape of mirrors on optical telescopes.

The Chandra X-ray Observatory contains four co-aligned pairs of mirrors.

These technical obstacles made many experts skeptical that an X-ray mirror with resolution comparable to the finest optical telescopes could be constructed, but van Speybroeck and colleagues proved them wrong.

Chandra's X-ray mirrors resulted from more than two decades of collaboration between van Speybroeck and colleagues at the Center for Astrophysics; the Marshall Center; TRW, Inc.; Hughes-Danbury (now BF Goodrich Aerospace); Optical Coating Laboratories, Inc.; and Eastman-Kodak.

In recognition of his contributions to X-ray optics, van Speybroeck was awarded the 2002 Bruno Rossi Prize of the High Energy Astrophysics Division of the American Astronomical Society. On learning of this honor, van Speybroeck said, "Many, many other people made essential contributions to the Chandra program, and hopefully some of them will receive proper recognition. I am thoroughly enjoying my days in the sun, but am quite humbled by the list of past recipients."

"Leon truly loved his family, his friends and colleagues, and his work," said Tananbaum. "We will miss him dearly and will think of him often as exciting new Chandra results appear."

## Young star cluster found aglow with mysterious cloud

*from the Smithsonian's Chandra X-ray Center*

**A**stronomers using NASA's Chandra X-ray Observatory discovered a mysterious cloud of high-energy electrons enveloping a young cluster of stars.

The extremely high-energy particles could cause dramatic changes in the chemistry of the disks that will eventually form planets around stars in the cluster.

Known as RCW 38, the star cluster covers a region about five light years across. It contains thousands of stars formed less than a million years ago and appears to be forming new stars even today. The crowded environment of a star cluster is thought to be conducive to the production of hot gas but not high-energy particles. Such particles are typically produced by exploding

stars, in the strong magnetic fields around neutron stars or black holes, none of which are evident in RCW 38.

"The RCW 38 observation doesn't agree with the conventional picture," said Scott Wolk of the Harvard-Smithsonian Center for Astrophysics in Cambridge, Mass., lead author of an "Astrophysical Journal Letters" paper describing the Chandra observation. "The data show that somehow extremely high-energy electrons are being produced there, although it is not clear how," he said.

Electrons accelerated to energies of trillions of volts are required to account for the observed X-ray spectrum of the gas cloud surrounding the ensemble of stars, which shows an excess

*See Chandra on page 6*

# Centennnial

*Continued from page 1*

operated. Unfortunately, it existed only a few months.

The onset of World War I brought aviation activities back to Montgomery with the establishment of an aviation repair depot on the land that once accommodated the Wright school. The role of military aviation was thus assured with other vital links in the nation's chain of defense.

Huddleston's timeline also points to other notable events in aviation and space in Alabama including the evolution of Wright Field into Maxwell Field in 1922. In 1925, the first airmail was delivered to Alabama, and 1929 saw the state's first airdrop during a civilian emergency when Maxwell aircraft dropped 50 tons of food and medicine to Alabama flood victims.

In 1940, an advanced flying school was established at Maxwell and for the next five years Gunter Field in Montgomery was activated to train pilots for World War II. "In 1942, the 68<sup>th</sup> Depot Mechanics School in Alabama began training women as their role increased in domestic support of the war effort," Huddleston said.

During the same period, black airmen trained to become single- or multi-engine pilots at Tuskegee Army Air Field in Tuskegee. In 1946, the school at Maxwell became Air University as its base shifted from flight training to academic and strategic training.

Huddleston also points to other important roles the military has played in aviation and space in Alabama. "In 1950, the Wernher von Braun rocket team moved to Huntsville to join with U.S.-born scientists and engineers. They formed the nucleus of the U.S. rocket and space program. In addition, Huntsville began its transition to one of the leading high technology cities in the South."

In 1961, President Kennedy set the goal of a manned lunar landing by the end of the decade. The Marshall Center, created in 1960, responded with the development of the Saturn V launch vehicle, and it responded again in 1981 — providing the propulsion elements to launch the first Space Shuttle.

"The Centennial of Flight is something we are very much looking forward to participating in during 2003," said Art Stephenson, director of the Marshall Center. "It will represent an excellent opportunity to talk about the future of aviation and space as well as its history."

Huddleston said education has been a part of Alabama's dedication to human flight, including research in aviation and aerospace at many of the state's colleges and universities.

"The public has also been there with us, too," Huddleston said, referring to the establishment of the Alabama Space & Rocket Center in 1970 -- now the U.S. Space & Rocket Center. The "Quick Monoplane," built in 1908 and designed by William L. Quick of Hardin, Tenn., is one of the many exhibits at the Center.

Huddleston's timeline also notes President Reagan's 1983 announcement related to the Strategic Defense Initiative and the establishment of the Army Strategic Defense Command in

Huntsville. The list also refers to the contributions that the aerospace and aviation industries have made in Alabama.

"Industry and business have been extremely important in providing contractor support to the government," Huddleston said. "We've seen many milestones like the announcement in 1998 that

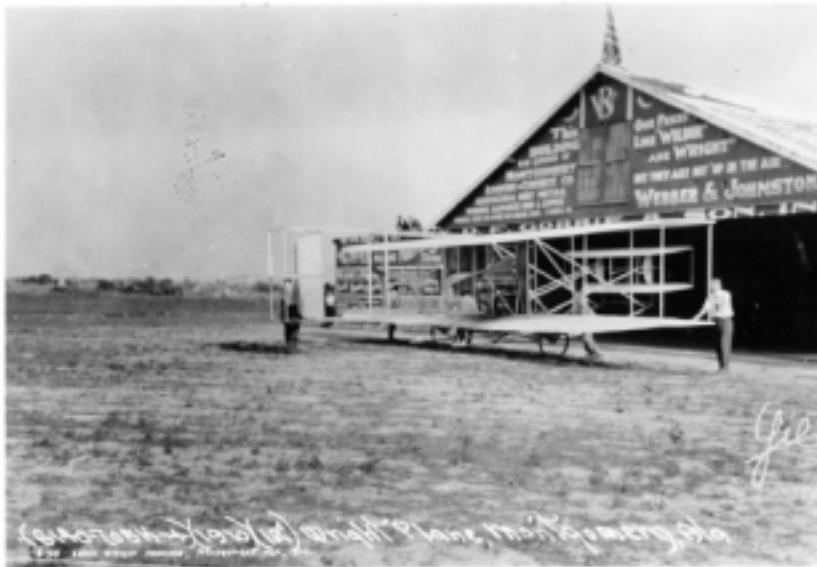


Photo courtesy Maxwell Air Force Base

**A Wright "flying machine" being rolled out of its hangar in Montgomery in 1910.**

Alabama would serve as the site for the new Boeing Delta IV rocket plant. All of these entities, local, state and national government, the military services, education, the public and industry in Alabama, deserve to mark 2003 as the Centennial of Flight in Alabama."

"There are very few things in this country that symbolize freedom more than the sight of an airplane flying across the blue sky or a Space Shuttle traveling in orbit. It all symbolizes the freedom of movement we enjoy in this country. Alabama looks forward to joining in this Centennial of Flight Celebration on both the national, state and local levels," Huddleston said, adding that specific details regarding celebration events will be announced in the next few months.

To view the Alabama Aviation and Aerospace Timeline, go to <http://aerospace.state.al.us/>. To learn more about the nation's plans for the Centennial of Flight, go to <http://www.centennialofflight.gov>. Specifics related to NASA and the Marshall Center's role in the centennial will be published in the Marshall Star and through other outlets.

*The writer is the Marshall Center historian.*

# Chandra

*Continued from page 4*

of high-energy X-rays. As these electrons move in the magnetic field that threads the cluster, they produce X-rays.

One possible origin for the high-energy electrons is a previously undetected supernova that occurred in the cluster. Although direct evidence for the supernova could have faded away thousands of years ago, a shock wave, or a rapidly rotating neutron star produced by the outburst, could be acting in concert with stellar winds to produce the high-energy electrons.

"Regardless of the origin of the energetic electrons," Wolk said, "their presence would change the chemistry of

proto-stellar disks in ways that could still be manifest billions of years later."

For example, in our own solar system, we find evidence of certain short-lived radioactive nuclides — Aluminum 26 being the most well known. This implies the existence of a high-energy process late in the evolution of our solar system. If our solar system was immersed, for a time, in a sea of energetic particles, this could explain the rare nuclides present in meteorites found on Earth.

RCW 38 is approximately 6,000 light years from Earth. It is one of the nearest star-forming regions with very young and hot stars. Other authors of the paper, which appeared in the Dec. 1, 2002, issue

of *Astrophysical Journal Letters*, are Tyler Bourke, Randall Smith and Bradley Spitzbart of the Harvard-Smithsonian Center for Astrophysics, and Joao Alves of the European Southern Observatory in Garching, Germany.

The Marshall Center manages the Chandra program for the Office of Space Science in Washington. TRW, Inc., Redondo Beach, Calif., is the prime contractor for the spacecraft. The Smithsonian's Chandra X-ray Center controls science and flight operations from Cambridge, Mass.

Images and additional information about this result are available at <http://chandra.harvard.edu/> and <http://chandra.nasa.gov/>.

## Obituaries

**Jandebeur, Frederick "Fred" A., 76**, of Springhill, La., died Dec. 7.

He was a native of Evansville, Ind., and came to Huntsville in 1958 where he worked as a mathematician and computer systems analyst for General Electric Corp., the Burroughs Corp., and joined the Marshall Center in 1963. He retired from the Center in 1994 as AST, software systems. He was a charter member of the Huntsville Concert Band and member of the Huntsville Track Club.

Jandebeur is survived by his wife, Louise Schroeder Jandebeur; three sons, Fred Schroeder of Evansville, La., Tom Jandebeur of Huntsville and John Jandebeur of Springhill, La.; four grandchildren; and one great-grandchild.

**McCaleb, Harold Kenneth, 82**, of Huntsville, died Oct. 8. Burial was in Chattanooga National Cemetery.

He retired from the Marshall Center in 1982 as an aerospace/mechanical engineer. He was a former German prisoner of war and U.S. Army Air Force veteran of World War II. In 1998, along with his wife, he founded The McCaleb Initiative for Peace at Missouri Southern State College in Joplin, Mo., where he also founded "The Chart" newspaper in 1939. He was a 54-year member of the American Society of Mechanical Engineers, a member of Elks Lodge 1648 and the American Legion Post 237. He volunteered with several Huntsville-area organizations including the Boy Scouts of America and was a member of Grace United Methodist Church.

McCaleb is survived by his wife, Margaret McCaleb; one son, Robert D. McCaleb of Cleveland, Tenn.; one sister, Bettie McCaleb of Joplin, Mo.; and three grandchildren.

**Moore, Philip Jr., 73**, of Huntsville, died Dec. 16. Burial was in Maple Hill Cemetery with Laughlin Service Funeral Home directing.

He retired from the Marshall Center in 1988 as AST, flight systems testing. He was former president of the North Alabama Chapter of the University of Tennessee at Knoxville Alumni Association, a member of Warrensburg Lodge No. 631 of the Free and Accepted Masons, a member of the American Association of Retired Persons, a member of Willowbrook Baptist Church and a member of both the American Kennel Club and Huntsville Kennel Club. He coached Little League baseball, was active as a Grissom High School band parent and was an early member of the Huntsville Youth Orchestra Board of Directors.

Moore is survived by his wife, Margaret C. Moore; two sons, Philip Moore III of Huntsville and Mark Hall Moore of Madison; and three grandchildren.

**Sisco, Winbern O. Jr., 84**, of Huntsville, died Dec. 13. Burial was in Maple Hill Cemetery with the Rev. Talmadge Clayton and the Rev. Dorothy Scott officiating and Laughlin Service Funeral Home directing.

He retired from the Marshall Center in 1973 as a program analyst. He was a U.S. Navy veteran of World War II, member of the Veterans of Foreign Wars, American Legion and a member of The Elks. He was the widower of Frances Balch Sisco with whom he gave many years of service to the Burritt Museum.

Sisco is survived by one daughter, Betty Vaughn Sisco Christian of Huntsville; one brother, Louis K. Sisco of Huntsville; one grandchild; and three great-grandchildren.

**Wells, Frederic E., 79**, of Madison, died Nov. 23.

He was employed by NASA from 1968 to 1971, when he retired from the Marshall Center as a quality engineer to establish the Wells Broadcasting Co. Inc., WNDA Radio.

Wells is survived by his wife, Doris Wobrock Wells.

# Center Announcements

## **SHARP mentors needed for student education programs**

The Marshall Center's Education Programs Department needs volunteers to work with students participating in the 2003 NASA Summer High School Apprenticeship Program. SHARP offers high school students opportunities to participate in an eight-week science and engineering program. Researchers and other science and engineering professionals are encouraged to volunteer as mentors. For more information, call 544-6025.

## **Mentors needed for Equal Opportunity program**

Employees in Marshall's technical directorates are encouraged to volunteer as mentors for the 2003 Equal Opportunity Office Summer Internship Program. For more information, call Madeline Hereford at 544-7420.

## **NASA Ski Week reservations being accepted**

The 12th-annual NASA Ski Week will be at Big Mountain ski resort in Montana Feb. 22-March 1, 2003. This is a 3,000-acre ski resort overlooking Glacier National Park. All Marshall team members, retirees, spouses and dependents are eligible to participate. For more information, call 233-0705 or e-mail Thomas.S.Dollman@msfc.nasa.gov.

## **Federal Express packages due no later than 2:30 p.m.**

The deadline for Federal Express packages to be at the mail room in Bldg. 4200 is 2:30 p.m. if you expect your package to go out the same day. Any packages brought in later than 2:30 p.m. will be shipped the following day. The FedEx Manager system requires a recipient's phone number on Form 4182.

## **Florida A&M University Alumni and Friends seeking members**

Area alumni of Florida A&M University interested in establishing a Huntsville chapter can call Robert McCoy

at 858-0830 or Wendell Johnson at 427-7043.

## **Weight Watchers session to begin Jan. 23**

The Weight Watchers group will begin a 15-week session on Jan. 23. Cost is \$165 and the program is open to all civil service and contractors at the Marshall Center. To sign up, or for more information, call Rachael Towle at 544-1525.

## **Engineering fracture mechanics course set for Feb. 24-26**

An "Introduction to Fracture Mechanics, Life Assessment and Fracture Control" course will be offered Feb. 24-26 if Marshall team members are interested. The course is being presented by the Marshall Center Engineering Initiative in Fatigue and Fracture, which is a voluntary effort within the Engineering Directorate. The purpose is to pursue a systematic approach to improving the fracture control process, and is part of an effort to improve workforce awareness and education in fracture control. Lectures will be presented by Robert H. Dodds, professor of civil engineering at the University of Illinois at Urbana-Champaign, and James C. Newman Jr., professor of aerospace engineering at Mississippi State University. Tentative times are 9-11:30 a.m. and 1-3:30 p.m. each day. Locations will be announced. Interested participants can call Doug Wells at 544-3300 in ED33 for more information.

## **Measurement workshop abstract deadline is Jan. 31**

Abstract submittal deadline for the Propulsion Measurement Sensor Development Workshop, set for May 13-15 in Huntsville, is Jan. 31. Forms are available at <http://spacetransportation.com>

## **MARS ballroom dance lessons**

Swing and meringue dance lessons will be offered each Monday in January at the Parish Hall of St. Stephens Episcopal Church on Whitesburg Drive in Hunts-

ville. Intermediate lessons are from 7-8 p.m. and beginner lessons are 8-9 p.m. The fee is \$6 per person and pre-registration is not required.

## **Basketball game tickets available**

The NASA Exchange and the Government and Community Relations Department are offering free tickets for the Huntsville Flight vs. North Charleston basketball game Jan. 31. Game time is 7:30 p.m. at the Von Braun Center. Limited tickets are available at the Space Shop, Bldg. 4203.

## **NASA Fellowship Program calling for nominations**

The NASA Administrator's Fellowship Program is calling for nominations for career employees at the GS-13 level or above. The 18-22 month program allows NASA employees to teach at a minority institution for one academic year. Applicants must sign a service agreement and be recommended by a directorate head or center director. The program is designed to enhance relationships between NASA and historically black colleges and other minority institutions. An information session will be from 10-11:30 a.m. Jan. 15 in Bldg. 4200, Room 716. For more information, call 544-7527.

## **CFC accepting applications for 2003 coordination**

The Local Federal Coordinating Committee for the Tennessee Valley Combined Federal Campaign is accepting applications for a Principle Combined Fund Organization (PCFO) to administer the 2003 campaign. The PCFO is responsible for campaign management and fiduciary responsibility. Applications are being accepted through Jan. 24. All applications must be mailed to CFC Chairperson, AMSAM-CFC, Bldg. 3708, Redstone Arsenal, Al. 35898-5795. Only federations, charitable organizations, or a combination of the two, are eligible to apply for the position.

# Employee Ads

## Miscellaneous

- ★ Evenflo activity exersaucer, \$35; hanging bouncy seat, \$10; Baby Bjorn carrier w/box, \$35. 722-2109
- ★ Thomasville solid Oak queen bedroom set; bed, triple dresser, mirror, nightstand, chest-of-drawers, \$900. 722-5282
- ★ Rear tine tiller, 3.5HP, \$100; Ryobi Weedeater \$50; 6' 3-wheel wheelbarrow, \$35. 881-2131
- ★ Pearson spoiler ZR compound bow, lighted f.o. sight, carbon arrows, release, hard case, \$350. 256-247-0680
- ★ Nordic Flex gold, power meter, butterfly attachment, manual, operational video, \$200. 837-6797
- ★ Image 571 home trainer gym, manuals, \$200; full-size violin, new, case & bow, \$95. 722-9989
- ★ King headboard, wood, medium dark stain, \$85. 256-726-0211
- ★ Set of Dunlop radial rover tires, \$250 obo. 758-2116
- ★ Three 2002 Yamaha XL700 Waverunners, used 4 months, \$4,200 each. 256-316-1505
- ★ Airstream trailer; Troy-Bilt tiller; electric lift chair; ninety-three Reader's Digest books. 881-6040
- ★ Whirlpool self-cleaning electric stove, white, \$150. 536-4507 after 5 p.m.
- ★ Longaberger Family Traditions baskets, set of 5, new, 1995-1999, \$700. 837-5035
- ★ 1946 12-gauge Winchester Model 12, \$400 obo; Yamaha jumbo acoustic guitar, \$300 obo. 536-7466
- ★ Sound Design 8-track player with 15 tapes, \$25. 881-8648
- ★ 1995 Yamaha Waveraider w/trailer & cover, \$1,800; Sharp Hi8 camcorder, \$50. 256-737-9492
- ★ 1997 18' bass boat, 115 Yamaha motor, 2-depth finders, 12V trolling motor, low hours, \$8,200. 830-1844
- ★ Bose 901 speakers, pre-amp, stands, \$875; Graber "Hitch-Hiker" trailer hitch bike rack, new, \$65. 922-1424
- ★ Ruger P89 9mm, \$300 obo; Taurus PT-908 9mm; \$350 obo. 723-4103
- ★ 2001 John Deere LT133 riding mower w/mulching adapter, 13HP, 38" cut, \$1,750. 534-3351
- ★ New Goodyear Wrangler tires, P265-70R-17, set of four, \$500 obo. 256-776-9506
- ★ HP 200Mhz Pentium computer, 80M Ram, 15g HD, ME, 14" monitor, KB, mouse. 931-433-5108
- ★ Exterior door for old house, 34" wide, original glass, \$10. 534-4968
- ★ Office desk, credenza, couch, ping-pong table, TVs, dresser, nightstand, other items. 508-0694
- ★ 2001 Honda off-road motorcycle, 90cc, 1-year old, \$1,400. 256-796-7740

- ★ "Men in Black II" DVD, full screen format, viewed once, \$12. 379-4677
- ★ Two Dalmatians, male, outdoor, 11-months, shots, wormed, partially trained, \$25 each or \$45 both. 256-766-9348
- ★ Cobra gravity back golf clubs, 3-pw, \$150. 509-2466
- ★ Deluxe loft bed, \$125. 881-7429
- ★ Diamond ring w/baguette diamonds on each side, 2 carats. 232-0390
- ★ Delta tool box, fits full-size truck, black plastic, two lids w/locks, \$65. 683-9364
- ★ Packard Bell computer, 233MHz, 4.3GB, CD-ROM, modem, speakers, 15" monitor, Canon printer, \$250. 772-4984
- ★ White tile tope and butcher block kitchen table w/ four matching chairs, \$125. 216-1502/leave message
- ★ HO train stuff: Remote switches, track, bridge, turntable w/motor. All unopened, unused. \$200. 306-0700 msg.

## Vehicles

- ★ 1999 Mazda Miata Montego, blue w/tan top, tan leather, PW/PDL, Bose 46K miles, \$13,250. 256-751-0680
- ★ 2000 Nissan Maxima GXE, 5-speed, 222HP, V6, 55K miles, gold, new tires, \$12,500. 350-2901/318-2921
- ★ 1995 Nissan Sentra GXE, green, automatic, electric locks/windows, AM/FM/cassette, \$2,700. 527-4306
- ★ 1977 Chevy El Camino, 350CI V8 engine, auto, air, PW/PS, \$3,000. 882-1343
- ★ 1988 Toyota pickup, red, 2-door, camper, needs front bushings, \$600 obo. 509-0196
- ★ 1976 Datsun 280Z, engine/interior good, some new parts, blue, \$1,500 obo. 256-880-5838
- ★ 1999 Honda CRV EX, AWD, CD, power windows/locks, cruise, EC, \$13,999. 864-8183
- ★ 1999 Honda CRV EX, AWD, automatic, CD, luggage rack, 46K miles, \$14,000. 353-0370/565-3022
- ★ 1992 Buick Riviera, 2-door, 6-cylinder, 59K miles, sunroof, all-power, keyless entry, \$5,600. 722-8674
- ★ 1991 Honda Accord EX, automatic, power roof, alloy wheels, white, 141K miles, one-owner, \$4,000. 881-2435
- ★ 2000 Mustang, 6-cylinder, alloys, am/fm/CD/cassette, fully loaded, \$8,450. 256-753-2278
- ★ 1993 Mercury Villager van, white, V6, a/c, all-power, GS package, 90K miles, one-owner, \$4,400. 880-8746
- ★ 1999 Dodge Intrepid, one-owner, 97K miles, 27L engine, all-power, CD, new tires, records, \$5,500. 682-3755

- ★ 1996 Plymouth Voyager SE, cruise, tilt, tinted windows, 104K miles, \$5,500. 864-8183
- ★ 1991 Honda Civic DX sedan, 5-speed, 129K miles, a/c, AM/FM/cassette, \$900 obo. 489-0136
- ★ 1991 Ford Escort, 96K miles, runs, needs head gasket, \$200 obo. 882-1696
- ★ 1997 Dodge Caravan, PS/PDL, ABS, roof rack, privacy glass, 4-door, w/warranty, \$7,600. 230-6846
- ★ 1996 Honda Accord EX, 89K miles, white, leather, am/fm/CD/Cassette, loaded, \$8,295. 971-3102/461-0176
- ★ 1990 Mazda 626, maroon, 5-speed, 190K miles, new battery, muffler. 881-4748
- ★ 1996 Chevrolet Silverado Z71, 4x4, extra cab, 3<sup>rd</sup> door, \$10,300. 233-5161
- ★ 1990 Olds Cutlass Supreme, 4-door, 173K miles, \$1,500 obo. 256-737-9492
- ★ 2001 Ranger XLT stepside, auto, air, cruise, CD, factory warranty, 13K miles, \$10,500. 256-726-0211
- ★ 2001 Chevrolet S-10 Xtreme, black, V6, loaded, \$14,500. 828-3181

## Free

- ★ Shop workbench, 6'x2.5'. 880-9015
- ★ Eight puppies from medium-sized mixed breed dogs. 971-1414
- ★ Puppy, black, male, 11-weeks old. 256-961-3408

## Found

- ★ Dark blue jacket on Dodd Road, Nov. 15. 544-7038
- ★ Christmas decoration pin, near Bldg. 4202 outside. Call 544-3623 to claim/identify

## Lost

- ★ Silver cat and mouse pin, Bldg. 4201 area, December 11. 544-7511
- ★ Silver wedding ring. Call 881-8648 if found

## Wanted

- ★ English saddle for beginning youth rider, close contact, 16.5" w/padded flaps preferred. 256-498-1179
- ★ NEC Advanced personal computer. 881-6595
- ★ Sega Dreamcast games, rated everyone or teen. 880-7118
- ★ Used Singer sewing machine in working condition. 961-7024

# MARSHALL STAR

Vol. 43/No. 15

Marshall Space Flight Center, Alabama 35812  
(256) 544-0030  
<http://www1.msfc.nasa.gov>

The Marshall Star is published every Thursday by the Internal Relations and Communications Department at the George C. Marshall Space Flight Center, National Aeronautics and Space Administration. Contributions should be submitted no later than Monday noon to the Marshall Internal Relations and Communications Department (CD40), Bldg. 4200, room 101. Submissions should be written legibly and include the originator's name. Send electronic mail submissions to: [intercom@msfc.nasa.gov](mailto:intercom@msfc.nasa.gov) The Marshall Star does not publish commercial advertising of any kind.

Manager of Internal Relations  
and Communications — Steven Durham  
Editor — Jonathan Baggs

U.S. Government Printing Office 2002-533-083-60035

Permit No. G-27  
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Postage & Fees PAID  
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